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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application No.	09/002,648
Filing Date	January 5, 1998
First Named Inventor	David M. Horne
Group Art Unit	2631
Examiner Name	Ghebretinsae, T.
Attorney Docket Number	42390P5113
Total Number of Pages in This Submission	54

ENCLOSURES *(check all that apply)*

- [x] Fee Transmittal Form
  - [x] Fee Attached
- [ ] Amendment / Response
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
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- [ ] Proprietary Information
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2 copies of appeal brief (34 pages).

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Firm or Individual name	Donna Jo Coningsby, Reg. No. 41,684 BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Signature	Donna Jo Coningsby
Date	March 7, 2001

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Complete if Known	
Application No.	09/002,648
Filing Date	January 5, 1998
First Named Inventor	David M. Horne
Examiner Name	Ghebretinsae, T.
Group/Art Unit	2631
Attorney Docket Number	42390P5113

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	
106	320	206	160	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES

			Extra Claims		Fee from below		Fee Paid
Total Claims	-	=		X		=	
Independent Claims	-	=		X		=	
Multiple Dependent						=	

**or number previously paid, if greater, For Reissues, see below*

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	260	204	135	Multiple Dependent claim, if not paid
109	80	209	40	**Reissue independent claims over original patent
110	18	210	9	**Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

FEE CALCULATION (continued)

3. ADDITIONAL FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for response within first month	
116	390	216	195	Extension for response within second month	
117	890	217	445	Extension for response within third month	
118	1,390	218	695	Extension for response within fourth month	
128	1,890	228	945	Extension for response within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	310.00
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	130	123	130	Petitions related to provisional applications	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	710	246	355	Filing a submission after final rejection (37 CFR 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR 1.129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	
Other fee (specify)					
Other fee (specify)					

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SUBTOTAL (3) ($) 310.00

SUBMITTED BY

Complete (if applicable)

Name (Print/Type)	Donna Jo Coningsby	Registration No. (Attorney/Agent)	41,684	Telephone	(503) 684-6200
Signature	Donna Jo Coningsby			Date	03/07/01

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Patent Application of:	)	
David Horne	)	Date: February 27, 2001
	)	
Serial No.: 09/002,648	)	Art Unit: 2631
Filed: January 5, 1998	)	
	)	Examiner: T. Ghebretinsae

For: A METHOD FOF USING ENDODED SPREADING CODES TO ACHIEVE HIGH BIT DENSITIES IN A DIRECT-SEQUENCE SPREAD SPECTRUM COMMUNICATION SYSTEM

HONORABLE DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE,
Washington, D.C. 20231

APPEAL BRIEF

IN SUPPORT OF APPELLANT'S APPEAL

TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Sir:

Appellant (hereafter "Appellant") hereby submit this Brief in triplicate in support of their Appeal from a final decision by the Examiner in the above-captioned case. Appellant respectfully requests consideration of this Appeal by the Board of Patent Appeals and Interferences for allowance of the claims in the above-captioned patent application.

An oral hearing is not desired.

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO:
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE, WASHINGTON, D.C. 20231, ON: March 7, 2001
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INTEL CORPORATION
Name of Assignee

SIGNATURE 3/07/01
DATE

03/14/2001 DLITTLE 00000003 09002648

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TABLE OF CONTENTS

I. REAL PARTY IN INTEREST

The invention is assigned to Intel Corporation of 2200 Mission College Boulevard, Santa Clara, California 95052.

II. RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge, there are no appeals or interferences related to the present appeal that will directly affect, be directly affected by, or have a bearing on the Board's decision.

III. STATUS OF THE CLAIMS

Claims 1-24 are currently pending in the above-referenced patent application. Claims 1-3, 5, 6, 8-16 and 19-24 were rejected in the Final Office Action mailed on July 27, 2000 and are the subject of this appeal. Claims 4, 7, 17 and 18 were objected to as being dependent upon a rejected claim. The Examiner confirmed his final rejection in an Advisory Action mailed on November 28, 2000.

The Final Office Action rejected claims 1-2, 8, and 11-15, and 21-22 under 35 U.S.C. §102(b) as being anticipated by Rosen (US 4,972,480), and, rejects claims 3, 5-6, 9-10, 16, 19-20, and 23-24 under 35 USC § 103(a) as being obvious in view of Rose.

IV. STATUS OF AMENDMENTS

To the best of Appellants' knowledge, no amendments have been filed subsequent to the Final Rejection.

A copy of all claims on appeal, namely claims 1-24, is attached hereto as Appendix A.

V. SUMMARY OF THE INVENTION

Direct Sequence Spread Spectrum (DSSS) techniques rely on the use of pseudo-noise carriers, also called spreading codes, spreading sequences, code sequences and chip sequences, and a transmission bandwidth which is wider than that used to transmit the information. The transmitter spreads the information by modulating the information with a pseudo-noise spreading sequence. At the receiver, the information is despread to recover the base information. This despreading is accomplished by correlating the received, spread-modulated, signal with the spreading sequence used for the transmission. DSSS is sometimes referred to by the shorthand name "direct spread." (Background page 1, lines 8-15).

For example, Figure 1(a) shows an example of what occurs to a signal when it is spread. Signal 100 is spread using a spreading sequence (not shown) into signal 101. As can be seen, the amplitude of the signal is decreased, while its bandwidth is expanded. By reducing the amplitude, the signal will appear indistinguishable from noise, and can only be recovered by a receiver that processes the correct spreading sequence. Figure 1(b) shows the spread signal 101 and an interference signal 102 which has been picked up during transmission. When the spread modulated signal 101 is demodulated by using the original spreading sequence (not shown), the original signal 100 is recovered and the interference signal 102 is spread into signal 103, thereby being reduced to noise.

Although the scope of the present invention is not limited in this respect, Figure 2(b) is a diagram of an exemplary method of spreading a signal using an encoded pseudo-noise code in accordance with an embodiment of the invention. An information signal 210 is modulated by a spreading signal to create a transmitted signal 214. In this case, an encoded pseudo-noise code is used. By using an encoded pseudo-noise code, multiple bits of information can be

transmitted per each pseudo-noise code instead of a single bit, as described above. (Page 5, lines 14-19)

The encoded pseudo-noise code is created by inverting one bit in a pseudo-noise code wherein the inverted bit of the pseudo-noise code corresponds to the value of the information signal being sent. As a trivial example, if two bits of information are to be sent per each pseudo-noise code, a four bit pseudo-noise code is required because two bits of information have a value ranging from zero to three (the four states). If the value of the information bits is 3 (the bits are '11'), then the third bit of the pseudo noise code is inverted, where the bits are numbered zero through three. (Page 5, line 19 to page 6, line4)

The encoding operation provided by inversion of one bit of a pseudo-noise code results in high bit densities of transmitted data while still containing high correlation. In any set of non-trivial length spreading codes, inversion of one bit will have an insignificant effect on the correlation properties, therefore, even inverting one bit will still result in high correlation for these non-trivial code lengths.

Although the scope of Appellant's invention is not limited in this respect, as shown in Figure 2(b), the data to be sent is "101" (i.e., a logical '5'). Thus, the fifth bit of the pseudo code is inverted to create an encoded pseudo noise code. So if the pseudo code is "01011010," the fifth bit is inverted to create an encoded pseudo noise code of "01111010" (note the fifth bit has been inverted from a '0' to a '1') (page 6 lines 4-13)

Upon receipt, the encoded pseudo noise code is decoded by comparing its value against the value of other codes (e.g. a table 350 shown in Figure 3). When the transmitted signal 214 from figure 2(b) is received, it is compared to the correlators for that pseudo-noise code 318. When a match is found then the value corresponding to the correlator (which corresponds to the location in which and inverted bit was found) is read. This value is the value of the original signal. In this manner, the signal is demodulated, or despread. Using the

example of the transmitted signal '01111010,' when it is compared with each correlator, it is found that it corresponds to correlator 315, where correlator 315 is pseudo-noise code 318 with the fifth bit inverted. Therefore the decoded signal 320 is equal to the numeric value '5' and in a binary signal is '101.' (Page 6 line 13 through page 7, line 8)

Although the scope of Appellant's invention is not limited in this respect, Appellants' claimed invention includes, as just one embodiment:

A method comprising:

creating a first encoded pseudo-noise code (e.g. code 213), wherein the first encoded pseudo-noise code (e.g. code 213) corresponds to a value (e.g. a logical 5) of a signal (e.g. information signal 210) to be transmitted; and

spreading a first signal by modulating the first signal (e.g. information signal 210) with the first encoded pseudo-noise code (e.g. code 213)."

VI. ISSUES PRESENTED

A. Whether claims 1-2, 8, 11-15, and 21-22 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Rosen (4,972,480).

B. Whether claims 3, 5-6, 9-10, 16, 19-20, 23-24 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Rosen (4,972,480).

VII. GROUPING OF CLAIMS

For the purposes of this appeal:

Claims 1-10 stand or fall together as Group I;

Claims 11-20 stand or fall together as Group II; and

Claim 21-24 stands or fall by itself as Group III.

Reasons for separate patentability of the above indicated Claim Groups I-III are presented in the argument section pursuant to 37 C.F.R. §1.192(c)(5).

VIII. ARGUMENT

A. REJECTION OF CLAIMS 1-2 AND 8 (GROUP I), 11-15 (GROUP II), AND 21-22 (GROUP III) UNDER 35 U.S.C. § 102(b) IN VIEW OF ROSEN IS IMPROPER. ROSEN DOES NOT EXPRESSLY OR INHERENTLY MEET CLAIM LIMITATIONS DIRECTED TO "CREATING A FIRST ENCODED PSEUDO NOISE CODE, WHEREIN THE FIRST ENCODED PSEUDO-NOISE CODE CORRESPONDS TO A VALUE OF A SIGNAL TO BE TRANSMITTED.".

The Examiner has rejected claims 1-2 and 8 under 35 U.S.C. §102(b) as being anticipated by Rosen. As is well-established, for a document to anticipate a claim under 35 U.S.C. §102(b), the document must disclose all the elements and limitations of the claim. See, e.g., Scripps Clinic & Research Foundation v. Genentech, Inc., 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). Therefore, if Rosen does not meet even one element or limitation of claim 1, then a *prima facie* case of anticipation has not successfully been made.

Claim Group I

Claim 1 states:

A method comprising:

creating a first encoded pseudo-noise code, wherein the first encoded pseudo-noise code corresponds to a value of a signal to be transmitted; and

spreading a first signal by modulating the first signal with the first encoded pseudo-noise code."

Appellant believes at least one ground on which to distinguish claim 1 from the cited document is that claim 1 recites: "**creating a first encoded pseudo-noise code, wherein the first encoded pseudo-noise code corresponds to a value of a signal to be transmitted.**" It is respectfully asserted that this is an example of a limitation that Rosen fails to meet.

TEACHINGS OF ROSEN

Rosen discloses a holographic communications device that modulates a single frequency or a narrow bandwidth signal(s) (column 4, lines 23-30). The holographic communications device includes an encoder complex multiplexer (encoder) that is coupled to a

pseudo noise generator. The encoder phase modulates complex signals by a pseudo random code signal that is produced by the pseudo noise generator (column 4, lines 39-68).

Rosen teaches the use of a pseudo-noise generator 15 (figure 4) to encrypt a transmitted signal so that the transmission appears as noise to others monitoring the communication. (column 1, lines 35-38) The decoding process at the receiver uses the same or similar pseudo-noise generator to reveal the original data signal as the differences between the **signal (e.g. the data**) and the **pseudo-noise code**. (emphasis added, column 1, lines 40-43) Thus, the transmission signal has two components 1) the data signal and 2) the pseudo-noise signal.

More significantly, in systems such as that referred to by Rosen, the pseudo noise code to be used with a transmission is not determined by the particular value of the information to be transmitted. Instead, parameters such as the time, built-in encryption keys, etc., are used to determine the particular pseudo code to be used.

EXAMINER'S INTERPRETATION

According to the Final Office action, Rosen discloses the use of a pseudo-noise code whose actual value is determined, at least in part, on the value of the information being sent at column 1, lines 23-43. The Final Office Action also states that in Rosen "[t]he encoded pseudo noise signal is the modified part of the pseudo noise signal and corresponds to the user." (emphasis added). The Final Office Action also stated that "Rosen does disclose pseudo random code that corresponds to the information to be transmitted. ... If you have an information signal to be transmitted you encode the information in such a way that only the receiver with the same of pseudo noise code will extract the information." (Final Office Action page 4, line 5-8).

Based on the comments provided in the Final Office Action, Appellant believes the Examiner does not fully appreciate what is referred to by the phrase "wherein the first encoded pseudo-noise code corresponds to the value of the signal to be transmitted." Appellant would like to clarify by way of example, however, it should be understood that the scope of Appellant's invention is in no way limited to this example.

Appellant's claim 1 calls for the particular pseudo noise code to be determined, at least in part, on the value of the information to be sent. The encoded pseudo-noise code is determined, at least in part, by inverting bits in a pseudo-noise code. The particular bit to be

inverted may be determined by the value of the information to be sent. Hence, the encoded pseudo-noise code is determined, at least in part, by the value of the information to be sent.

For example, as shown in Appellant's FIGs. 2b and 3, a pseudo-noise code of "01011010' may be used. If a logical '5' (e.g. a '101') is to be transmitted, the fifth bit is inverted to provide an encoded pseudo noise code of "01111010". However, a different code (e.g., "01001010" is used if a logical "4" is to be transmitted. Thus, different encoded pseudo noise codes may by used depending on the particular value of the information to be sent. It should be understood that the scope of the present invention is not limited to this example as the value of the data make be used to invert other bits in a pseudo-noise code.

Appellant respectfully submits that column 1, lines 23-43, of Rosen does not teach or suggest that the pseudo-noise code used to encrypt a transmission is determined in any way on the logical value of the information to be sent. Rather, a pseudo noise code is used to encode information to be sent and the value of the pseudo code is independent of the value of the information being sent. As mentioned earlier, parameters such as the time, built-in encryption keys, etc., are used to determine the particular pseudo code to be used – **not the value of the information to be sent.** Thus, Rosen does not teach or suggest that the pseudo noise code to be used changes in any way on the particular value of the information to be sent.

Accordingly, Appellant respectfully submits that the Examiner has not established a *prima facie* case of anticipation and that Rosen cannot anticipate Appellant's claim 1, and the Examiner's rejection of claim 1 under 35 U.S.C. § 102(b) is improper. Since claims 2 and 8 depend from and includes all the limitations of claim 1, it is distinguished from Rosen for at least the same reason.

Claim Group II

As previously indicated, Claim Group II includes claims 11-20. In the Final Office Action, mailed on July 27, 2000, the Examiner rejected claims 11-15 under 35 U.S.C. § 102(b) in view of Rosen Appellant's earlier arguments made with regard to Group I apply equally to Claim Group II and are incorporated by reference in this subsection of the Appeal Brief.

Claim 11 recites, among other things, a first encoder for creating a first encoded pseudo-noise code that corresponds to a value of a signal to be transmitted.

As discussed above with respect to claim 1, Rosen must meet every element and limitation of claim 11 in order to anticipate the claim. As discussed about, Rosen fails to teach or suggest a communication system where the particular pseudo-noise code is determined in any way on the value of the particular information to be sent. Instead, the pseudo noise code is determined by other parameters such as time, user id, etc.

Accordingly, Appellants respectfully assert that Rosen fails to meet all the elements and limitations of claim 11. Therefore, Appellants submit that claim 11 recites patentable subject matter. Since claims 12-15 depend from claim 11, they are not anticipated by Rosen for at least the same reason.

Claim Group III

As previously indicated, Claim Group II includes claims 21-24. In the Final Office Action, mailed on July 27, 2000, the Examiner rejected claims 21-22 under 35 U.S.C. § 102(b) in view of Rosen Appellant's earlier arguments made with regard to Group I apply equally to Claim Group III and are incorporated by reference in this subsection of the Appeal Brief.

Claim 21 recites, among other things, generating a first encoded pseudo-noise code, wherein the first encoded pseudo-noise code represents a value of a signal to be transmitted.

As discussed above with respect to claim 1, Rosen must meet every element and limitation of claim 21 in order to anticipate the claim. As discussed about, Rosen fails to teach or suggest a communication system where the particular pseudo-noise code is determined in any way on the value of the particular information to be sent. Instead, the pseudo noise code is determined by other parameters such as time, user id, etc.

Accordingly, Appellants respectfully assert that Rosen fails to meet all the elements and limitations of claim 21. Therefore, Appellants submit that claim 21 recites patentable subject matter. Since claim 22 depends from claim 21, it is not anticipated by Rosen for at least the same reason.

B. REJECTION OF CLAIMS 5, 5, 6, and 9-10 (GROUP I), 16 and 19-20 (GROUP II), AND 23-24 (GROUP III) UNDER 35 U.S.C. § 103(a) IN VIEW OF ROSEN IS IMPROPER. ROSEN DOES NOT TEACH OR SUGGEST CLAIM LIMITATIONS DIRECTED TO "CREATING A FIRST ENCODED PSEUDO NOISE CODE, WHEREIN THE FIRST ENCODED PSEUDO-NOISE CODE CORRESPONDS TO A VALUE OF A SIGNAL TO BE TRANSMITTED."

Claim Group I

Claims 3, 5, 6, and 9-10 depend from claim 1. Has explained above, Rosen does not teach or suggest that the pseudo-noise code used to encrypt a transmission is determined in any way on the logical value of the information to be sent. Rather, Rosen teaches that the value of the pseudo code is independent of the value of the information being sent. Consequently, Rosen cannot make Appellant's claim 1 obvious. Moreover, the Final Office Action did not provide any explanation as to how Rosen makes this feature of claim 1 obvious. Accordingly, Rosen cannot make Appellant's claims 3, 5, 6, or 9-10 obvious since Rosen cannot make the independent claim, from which these claims depend, obvious.

Claim Group II

Claims 16 and 19-20 depend from claim 11. Has explained above, Rosen does not teach or suggest that the pseudo-noise code used to encrypt a transmission is determined in any way on the logical value of the information to be sent. Rather, Rosen teaches that the value of the pseudo code is independent of the value of the information being sent. Consequently, Rosen cannot make Appellant's claim 1 obvious. Moreover, the Final Office Action did not provide any explanation as to how Rosen makes this feature of claim 11 obvious. Accordingly, Rosen cannot make Appellant's claims 16 and 19-20 obvious since Rosen cannot make the independent claim, from which these claims depend, obvious.

Claim Group II

Claims 23-24 depend from claim 21. Has explained above, Rosen does not teach or suggest that the pseudo-noise code used to encrypt a transmission is determined in any way on the logical value of the information to be sent. Rather, Rosen teaches that the value of the pseudo code is independent of the value of the information being sent. Consequently, Rosen cannot make Appellant's claim 1 obvious. Moreover, the Final Office Action did not provide any explanation as to how Rosen makes this feature of claim 21 obvious. Accordingly, Rosen cannot make Appellant's claims 23-24 obvious since Rosen cannot make the independent claim, from which these claims depend, obvious.

IX. CONCLUSION

Appellant respectfully submits that all the pending claims in this patent application are patentable and request that the Board of Patent Appeals and Interferences overrule the Examiner and direct allowance of the rejected claims and objected claims.

This brief is submitted in triplicate, along with a check for $300.00 to cover the appeal fee for one other than a small entity as specified in 37 C.F.R. § 1.17(c). Please charge any shortages and credit any overcharges to Deposit Account No. 02-2666.

Respectfully submitted,

Date: Feb 27, 2001

Kenneth M. Seddon

Kenneth M. Seddon
Attorney for Appellants
Registration Number: 43,105

Blakely, Sokoloff, Taylor & Zafman
12400 Wilshire Boulevard
Seventh Floor
Los Angeles, CA 90025-1026
(408) 720-8598

X. APPENDIX A: CLAIMS ON APPEAL

1. A method comprising:

creating a first encoded pseudo-noise code, wherein the first encoded pseudo-noise code corresponds to a value of a signal to be transmitted; and

spreading a first signal by modulating the first signal with the first encoded pseudo-noise code..

2. The method of claim 1, wherein creating a first encoded pseudo-noise code comprises:

modifying a first pseudo-noise code to create the first encoded pseudo-noise code.

3. The method of claim 2, wherein the first encoded pseudo-noise code is the first pseudo-noise code with one bit inverted.

4. The method of claim 3 wherein the position of the one inverted bit of the first encoded pseudo-noise code corresponds to the value of the first signal.

5. The method of claim 2, wherein a second encoded pseudo-noise code is the first pseudo-noise code with one bit inverted.

6. The method of claim 3, further comprising:

narrowing the first signal by demodulating the first signal with the first encoded pseudo-noise code.

7. The method of claim 6, where narrowing the first signal by demodulating the first signal with the first encoded pseudo-noise code further comprises:

demodulating the first signal into a value corresponding to the position of the inverted bit of the encoded pseudo-noise code.

8. The method of claim 1 wherein the first encoded pseudo-noise code corresponds to a first user.

9. The method of claim 1 further comprising:
storing a table of orthogonal pseudo-noise codes.

10. The method of claim 9 further wherein a second encoded pseudo-noise code located in the table corresponds to a second user.

11. A direct-sequence spread spectrum communications system comprising:
a first encoder for creating a first encoded pseudo-noise code, the first encoded pseudo-noise code corresponding to a value of a signal to be transmitted; and
a first modulator for modulating a first signal with the first encoded pseudo-noise code.

12. The system of claim 11 further comprising:
a second encoder for creating a first encoded pseudo-noise code; and
a second modulator for modulating a second signal with the second encoded pseudo-noise code.

13. The system of claim 12 further comprising:
a first demodulator for demodulating the first signal; and
a second demodulator for demodulating the second signal.

14. The system of claim 13 wherein the first demodulator demodulates the first signal based upon a first correlator corresponding to the first encoded pseudo-noise code and the second demodulator demodulates the second signal based upon a second correlator corresponding to the second encoded pseudo-noise code.

15. The system of claim 11 wherein the first encoder creates the first encoded pseudo-noise code by modifying a first pseudo-noise code.

16. The system of claim 15 wherein the first pseudo-noise code is the first pseudo-noise code with one bit inverted.

17. The system of claim 16 wherein the position of the one inverted bit of the first encoded pseudo-noise code corresponds to the value of the first signal.

18. The system of claim 13 wherein the first demodulator demodulates the first signal into a value corresponding to the position of an inverted bit of the first encoded pseudo-noise code and the second demodulator demodulates the second signal into a value corresponding to the position of an inverted bit of the second encoded pseudo-noise code.

19. The system of claim 12 wherein the first encoded pseudo-noise code corresponds to a first user and the second pseudo-noise code corresponds to a second user.

20. The system of claim 11 wherein the first encoder comprises a table of orthogonal pseudo-noise codes.

21. A method comprising:

generating a first encoded pseudo-noise code, wherein the first encoded pseudo-noise code represents a value of a signal to be transmitted.

22. The method of claim 21, wherein creating the first encoded pseudo noise includes modifying a first pseudo-noise code to create the first encoded pseudo-noise code.

23. The method of claim 22, wherein creating the first encoded pseudo-noise code includes inverting one bit of a pseudo-noise code.

24. The method of claim 23, wherein inverting one bit of a pseudo-noise includes inverting the bit corresponding to the value of the first signal.